

LISTING OF CLAIMS

1. (currently amended) A method for forming a multilevel patterned mask structure on a substrate surface to pattern said substrate, the method comprising the steps of:

depositing a curable liquid layer on the substrate surface;

aligning a stamp relative to the substrate surface via complementary formations on the stamp and the surface;

pressing the stamp having a multilevel pattern therein into the liquid layer to produce in the liquid layer a multilevel patterned mask structure defined by the pattern; ~~and,~~

curing the liquid layer to produce a solid layer having the multilevel patterned mask structure therein;

removing the stamp; and

performing at least one subtractive processing through said multilevel patterned mask to pattern said substrate.

2. (canceled)

3. (currently amended) A method as claimed in claim [[2]]
1, wherein the aligning comprises lubricating movement of
the stamp relative to the surface via the liquid layer.

4. (original) A method as claimed in claim 3, wherein the
complementary formations comprise protrusions on one of the
stamp and the surface and recessed for receiving the
protrusions on the other of the stamp and the surface.

5. (original) A method as claimed in claim 4, wherein the
stamp is formed from an elastomeric material.

6. (original) A method as claimed in claim 5, wherein the
aligning comprises stretching the stamp.

7-16 (canceled)

17. (new) The method as claimed in claim 1, wherein
the protrusions are offset relative to the corresponding
recesses to produce deformation of the stamp.

18. (new) The method as claimed in claim 1, wherein the
depositing comprises depositing an excess of the liquid
comprising the liquid layer on the protrusions.

19. (new) The method as claimed in claim 18, wherein the aligning comprises expansion of the recesses in the direction of the offset when brought into contact with corresponding protrusions, the elasticity of the stamp providing an exit path for the excess liquid and allowing each recess to close around a corresponding protrusions.

20. (new) The method as claimed in claim 1 wherein the solid layer is formed from a dielectric material and the multilevel structure comprises a multilevel cavity in the solid layer.

21. (new) The method as claimed in claim 1 wherein the solid layer is formed from a resist material, the multilevel structure comprises a multilevel cavity in the solid layer, and the depositing comprises depositing a resist material in liquid form on a dielectric layer.

22. (new) The method as claimed in claim 21 further comprising etching the dielectric layer via the solid layer to transfer the cavity from the solid layer to the dielectric layer.

23. (new) The method as claimed in claim 20 further comprising depositing metal in the cavity to produce a conductive structure embedded in the dielectric material.

24. (new) The method as claimed in claim 23 further comprising performing thiol printing on the dielectric layer, thereby to prevent deposition of metal outside of the cavity.

25. (new) The method as claimed in claim 23 wherein the cavity comprises a first level corresponding to a longitudinal element of the conductive structure and a second level corresponding to a lateral element of the conductive structure.

26. (new) The method as claimed in claim 25 wherein the longitudinal element comprises a via for completing an electrical connection between adjacent levels of a multilevel interconnection structure for an integrated circuit, and the lateral element comprises a wire for completing an electrical connection with one of the adjacent levels of the integrated circuit.

27. (new) The method as claimed in claim 1 wherein the stamp comprises an optically transparent stamp and wherein curing comprises exposing the liquid layer to ultraviolet light through the optically transparent stamp.

28. (new) A method for fabricating an integrated circuit having a multilevel interconnection structure, the method comprising between at least one pair of adjacent levels of the interconnection structure, forming an electrically conductive structure by performing a method comprising the steps of:

depositing a curable liquid layer on a substrate surface;

aligning a stamp relative to the substrate surface;

pressing the stamp having a multilevel pattern therein into the liquid layer to produce in the liquid layer a multilevel structure defined by the pattern;

curing the liquid layer to produce a multilevel patterned mask in said solid layer having the multilevel structure therein;

removing the stamp; and

performing at least one subtractive processing through said multilevel patterned mask to pattern said substrate; and

performing at least one additive processing to deposit conductive material for said multilevel interconnection structure.